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Inventors: L.R. Dalton et al. Application No.: 09/912,444
Docket No.: UOFW117403

## 3/45

Fig.2A.

Fig.2B.

HO 
$$0$$
  $Si$   $Si$   $0$   $F$   $F$   $F$ 

Fig.2C.

aggist, the cases

Inventors: Application No.: 09/912,444
Docket No.: UOFW1174

L.R. Dalton et al.

UOFW117403

## 4/45

HO 
$$S_{i}$$
  $S_{i}$   $S$ 

Fig.2E.

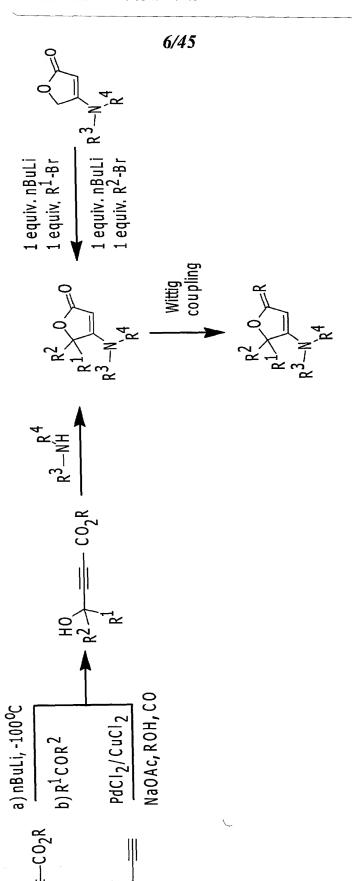
Application No.: 09/912,444
Docket No.: UOFW1174

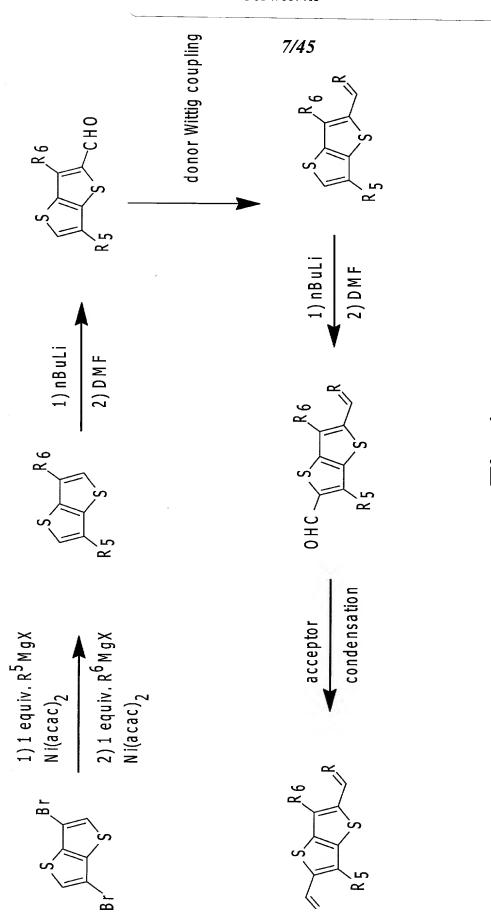
UOFW117403

5/45 HO.  $\text{C}\dot{\text{F}}_3$ НО Fig.2F.

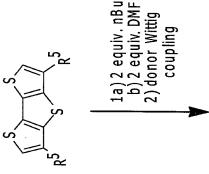
Fig. 2G. 
$$F_3^{\text{C}}$$
  $F_5^{\text{F}}$   $F_5^{\text{$ 

Fig. 2H. 
$$F = F = F_3 C = NC$$







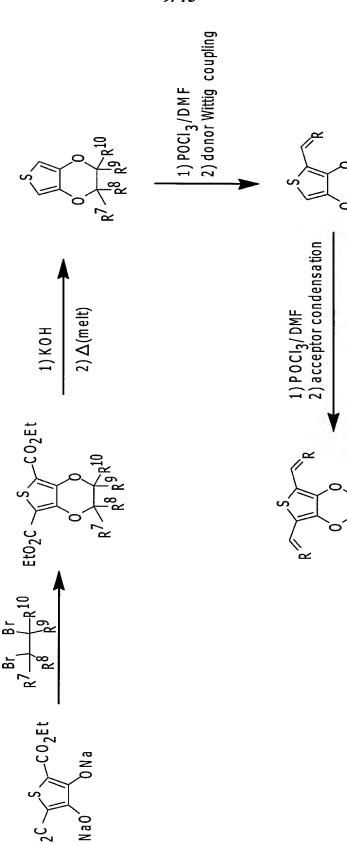


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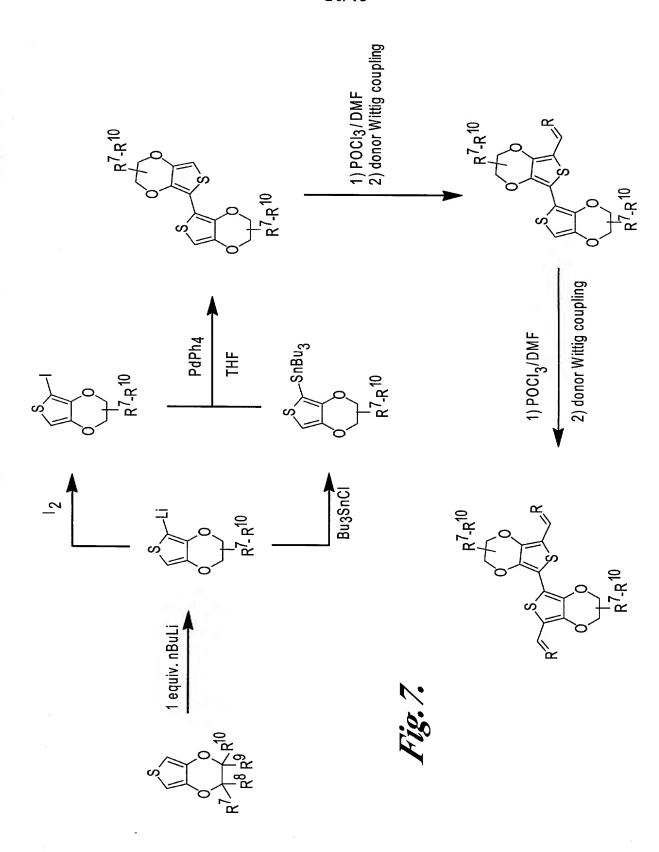
Docket No.:

UOFW117403

9/45



10/45



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Inventors: L.R. Dalton et al. Application No.: 09/912,444
Docket No.: UOFW117403

## 11/45

Fig. 8.

L.R. Dalton et al.

Application No.: 09/912,444 Docket No.:

UOFW117403

12/45

MeO

OMe

Fig. 9.

Inventors: Application No.: 09/912,444

L.R. Dalton et al.

Docket No.:

NSSIBLE OSOBOR

UOFW117403

### 13/45

$$0 \xrightarrow{S} 0 \xrightarrow{2.1 \text{ equiv n-BuLi}} DMF \qquad H^{+}/H_{2}O \qquad OHC \qquad S CHO \\ 0 \xrightarrow{-78^{\circ}C, \text{ THF}} 0 \qquad 0 \qquad 8$$

# Fig. 10.

$$H_3C$$
  $CH_3$   $CH_3$ 

# Fig.11.

Fig. 13.

Title: HYPERPOLARIZABLE ORGANIG CHROMOPHORES
Inventors: L.R. Dalton et al.
Application No.: 09/912,444
Docket No.: UOFW117403

14/45

Fig. 12.

Title: HYPERPOLARIZABLE ORGANIC CHROMOPHORES
Inventors: L.R. Dalton et al.
Application No.: 09/912,444
Docket No.: UOFW117403

# *15/45*

Fig. 14.

Inventors: L.R. Dalton et al. Application No.: 09/912,444
Docket No.: UOFW117403

1. t-BuLi  $|3. \text{ICH}_2\text{PO(OEt)}_2$ *16/45* C<sub>6</sub>H<sub>13</sub> 2. CuI C<sub>6</sub>H<sub>13</sub> HexylMgBr ≃ NBS  $\propto$ 찚 ≃ 酉 1. n-BuLi Z 奋 型 四  $c_{6}H_{13}$ 岛  $Br_2$ t-BuOK

EGGTELL CECE

Inventors: L.R. Dalton et al. Application No.: 09/912,444
Docket No.: UOFW117403

17/45

KOH/H,0/Benzene KOH/H<sub>2</sub>0/Benzene

DOGIZ+++.GECEOE

3 0

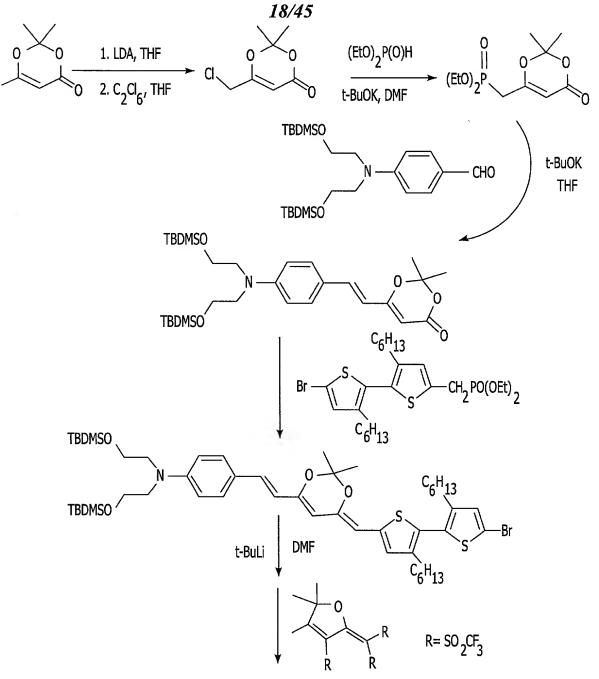
Fig. 20.

Inventors:

L.R. Dalton et al.

Application No.: 09/912,444 Docket No.:

UOFW117403



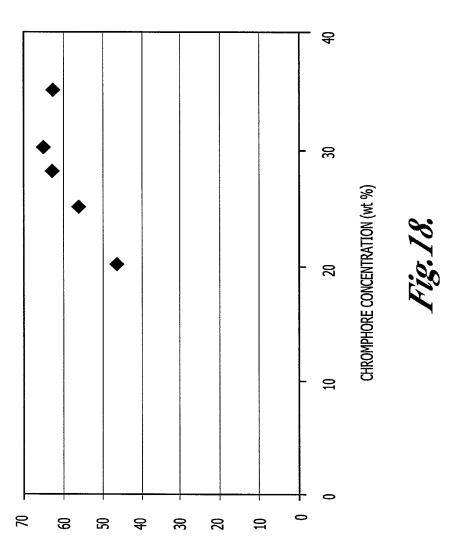
TBDMSO 
$$C_{6}H_{13}$$
  $C_{6}H_{13}$   $R$   $R$ 

Fig.17.

Title: HYPERPOLARIZABLE ORGANIC CHROMOPHORES

myentors: L.R. Dalton et al.
Application No.: 09/912,444
Docket No.: UOFWIII

19/45



EO COEFFICIENT (pm / V at 1.3 microns)

20/45

DSGIPLAL CECE

21/45 ΗQ НО НО NĆ

Title: HYPERPOLARIZABLE ORGANIC CHROMOPHORES

Inventors: L.R. Dalton et al. Application No.: 09/912,444
Docket No.: UOFW117403

22/45

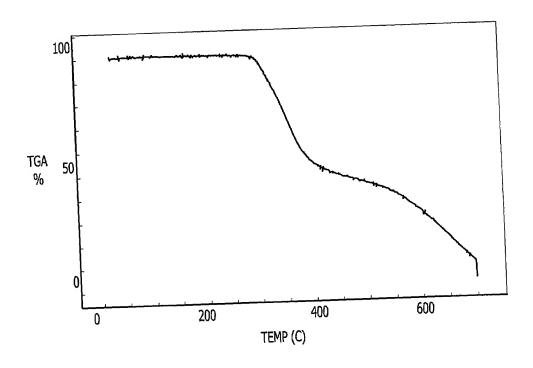
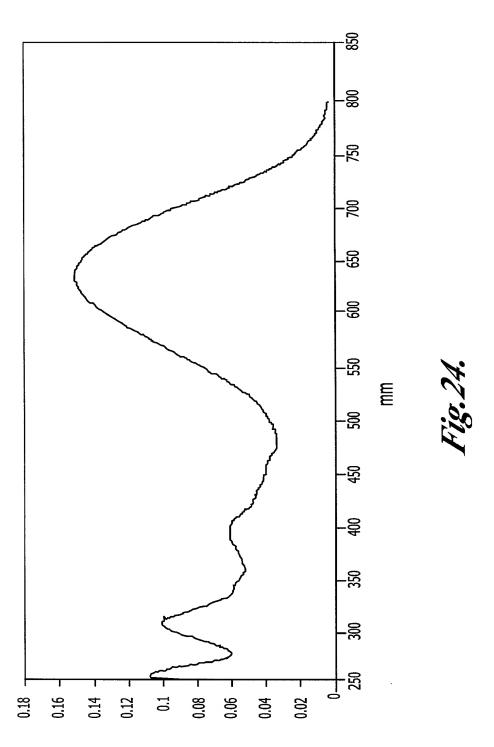


Fig.23.

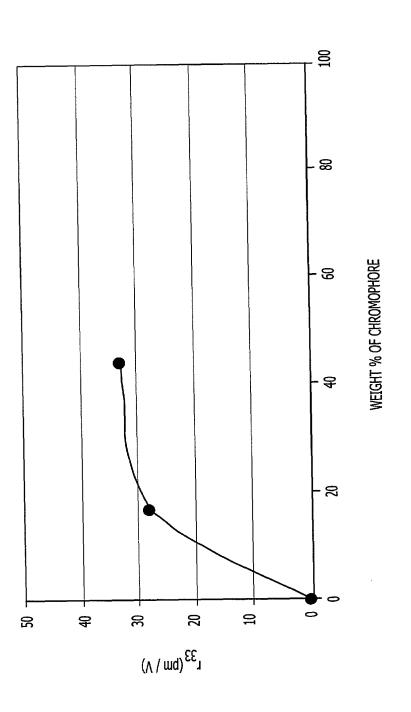
Title: HYPERPOLARIZABLE ORGANIC CHROMOPHORES
Inventors: L.R. Dalton et al.
Application No.: 09/912,444
Docket No.: UOFW117403

23/45



Title: HYPERPOLARIZABLE ORGANIC CHROMOPHORES Inventors: L.R. Dalton et al.
Application No.: 09/912,444
Docket No.: UOFW117403

24/45



Title: HYPERPOLARIZABLE QRGANIC CHROMOPHORES Inventors:

L.R. Dalton et al.

Application No.:

09/912,444

Docket No.:

UOFW117403

Inventors: Application No.: 09/912,444
Docket No.: UOFW1174

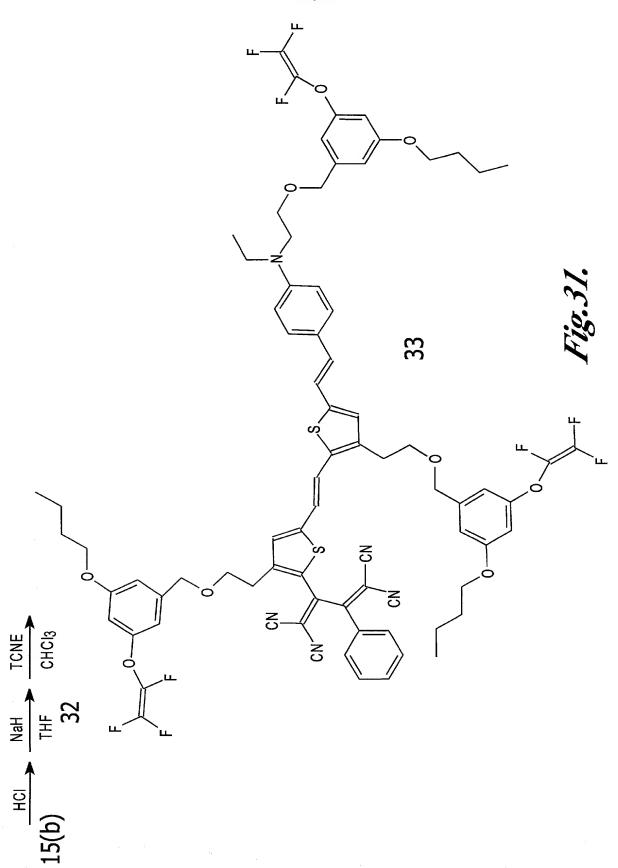
L.R. Dalton et al. UOFW117403

27/45 HO ŌН ·OH 15(a) HCI 24 NaH THF 18 Dend Dend Dend 25 `Dend Tetracyanoethylene CHCI<sub>3</sub> Dend = **CN** α۷· άN 26

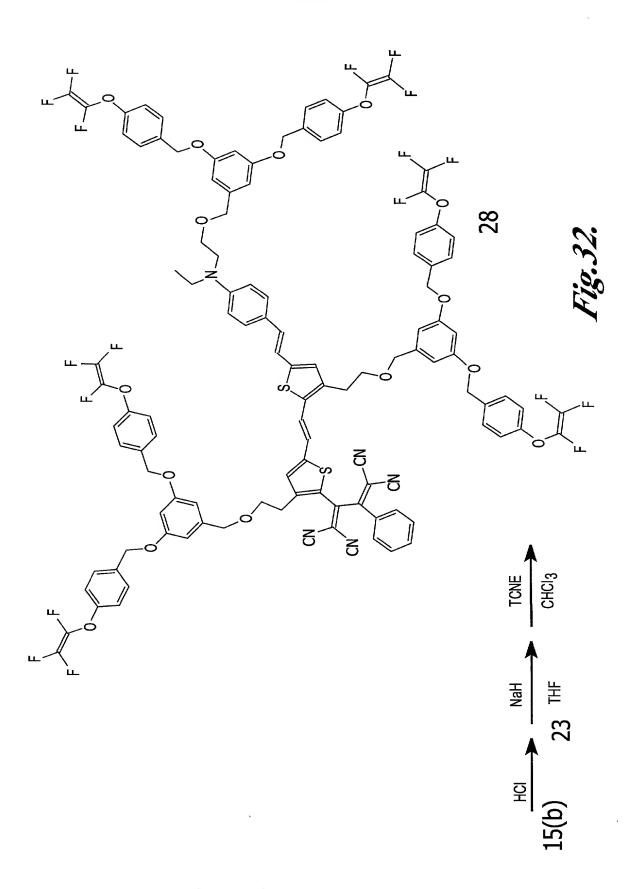
28/45

Title: HYPERPOLARIZABLE ORGANIC CHROMOPHORES
Inventors: L.R. Dalton et al.
Application No.: 09/912,444
Docket No.: UOFW117403

# 29/45



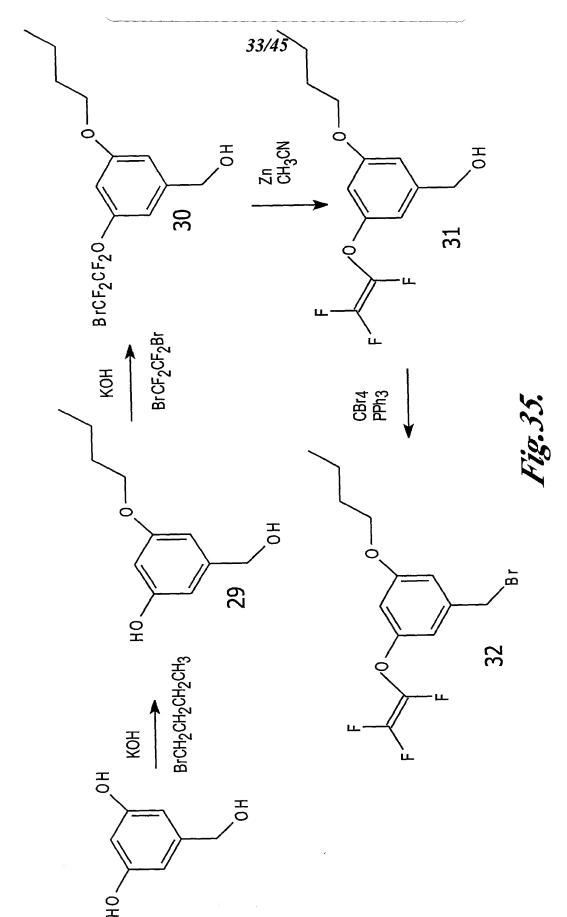
*30/45* 

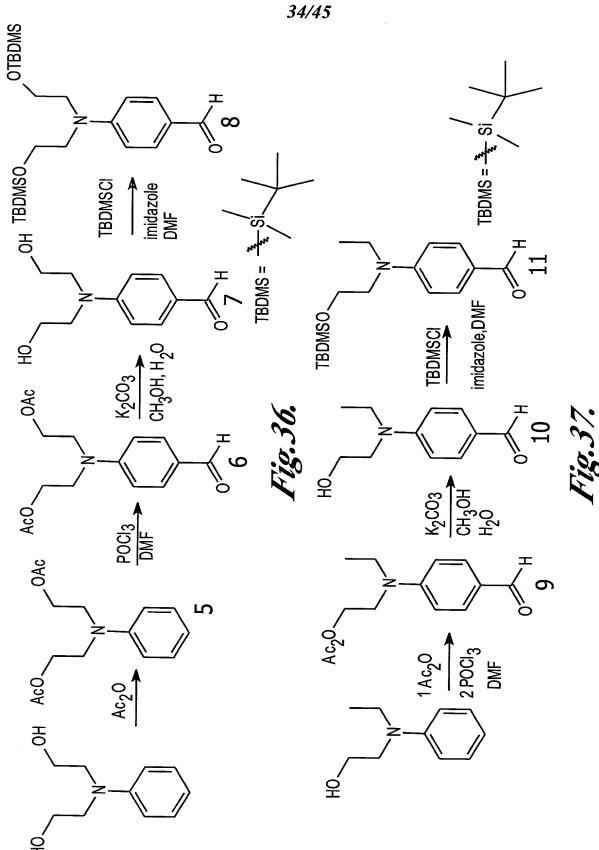


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Title; HYPERPOLARIZABLE ORGANIC CHROMOPHORES
Inventors: L.R. Dalton et al.
Application No.: 09/912,444
Docket No.: UOFW117403

Title: HYPERPOLARIZABLE ORGANIÇ CHROMOPHORES Inventors: L.R. Dalton et al. Application No.: 09/912,444
Docket No.: UOFW117403





35/45

Application No.: 09/912,444

Docket No.:

UOFW117403

36/45

Fig.39.

**TBDMSO** 

Docket No.:

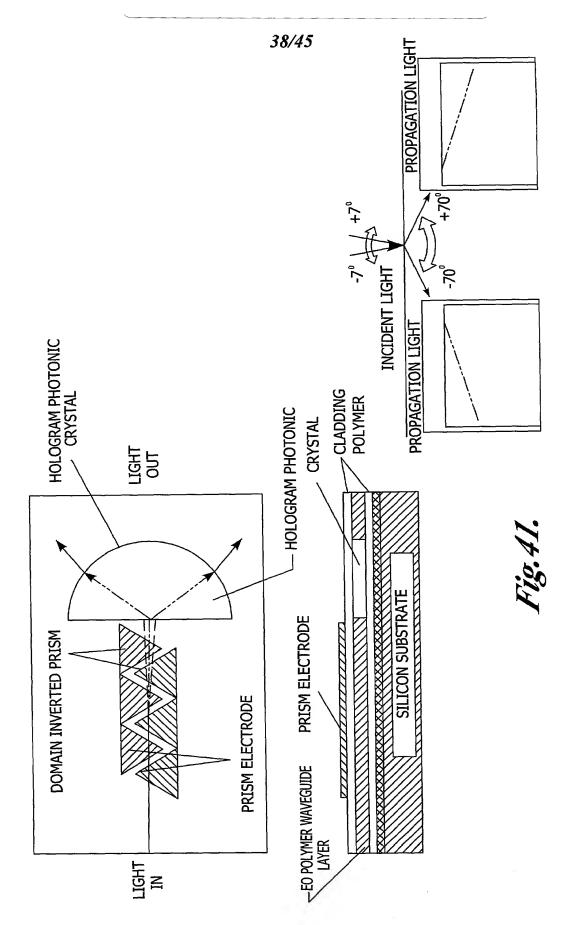
UOFW117403

37/45

a R = OTBDMSbR = H

Fig. 40.

Title: HYPERPOLARIZABLE ORGANIÇ CHROMOPHORES Inventors: L.R. Dalton et al.
Application No.: 09/912,444
Docket No.: UOFW117403



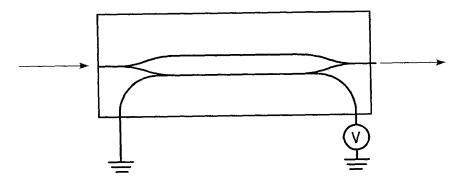
Inventors:

L.R. Dalton et al.

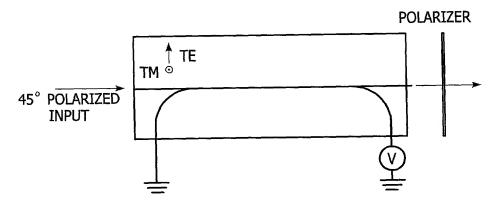
Application No.: 09/912,444 Docket No.:

UOFW117403

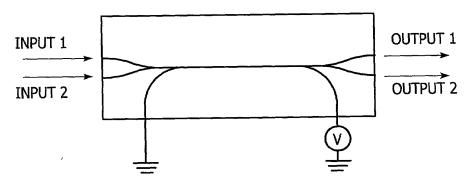
39/45



MACH ZEHNDER MODULATOR



### BIREFRINGENT MODULATOR



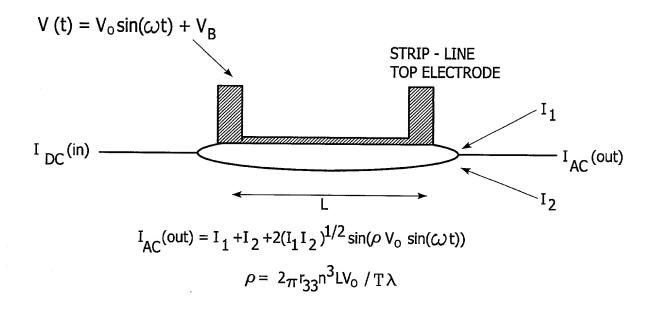
**DIRECTIONAL COUPLER** 

Fig. 42.

Docket No.:

UOFW117403

40/45



	COMPARISON OF KEY FEATURES OF SIMPLE DEVICES		
	MACH ZEHNDER INTERFEROMETER	BIREFRINGENT MODULATOR	DIRECTIONAL COUPLER
r <sub>eff</sub>	<sup>r</sup> 33	<sup>r</sup> 33 <sup>-r</sup> 13	r <sub>33</sub>
$V_{\pi}$	${\sf v}_{\pi \sf MZ}$	1.5 V $_{\pi  extsf{MZ}}$	1.73 V $_{\pi  extsf{MZ}}$
Mod. Power	P <sub>MZ</sub>	2.75 P <sub>MZ</sub>	<sup>3 P</sup> MZ

Fig. 43.

Title: HYPERPOLARIZABLE ORGANIC CHROMOPHORES

Inventors: L.R. Dalton et al. Application No.: 09/912,444
Docket No.: UOFW117403

41/45

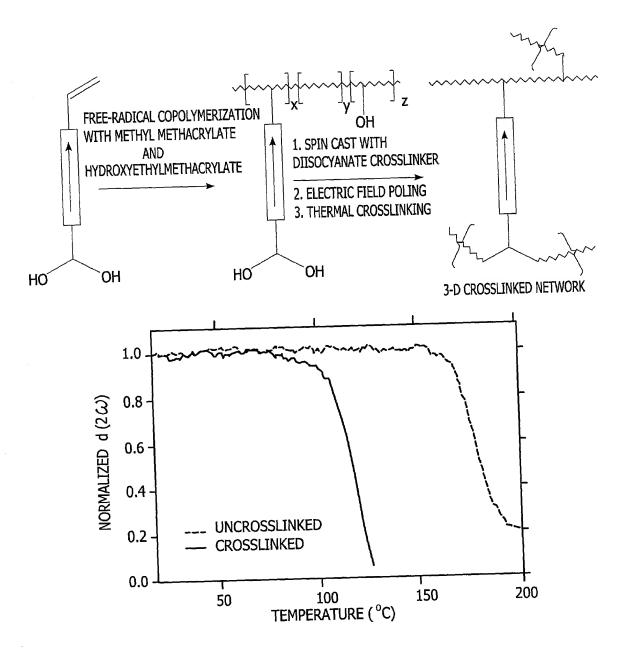


Fig. 44.

42/45 NaOEt **EtOH** CHO PPh<sub>3</sub>Br W 1.tBuLi 2.DMF СНО W X ÇN piperidine chloroform CHO X .CN

Fig. 45.

CN

Z

UOFW117403

43/45

Fig. 46.

Title: HYPERPOLARIZABLE ORGAŅIC CHROMOPHORES Inventors: L.R. Dalton et al. Application No.: 09/912,444 Docket No.: UOFW117403

44/45

Fig.47.

45/45

В

OH K<sub>2</sub>CO<sub>3</sub> 18-Crown-6 Acetone Α tBuLi (MeO)<sub>3</sub>B

В